firm the popular belief that the weather has a dependence upon or even an indirect relation with the condition of the moon. The origin of this belief in the lunar influence can be traced back to Arabia and the astronomers of Assyria and Chaldea, and it is maintained in various forms by all peoples that use the Arabic language or inherit the old Arabic folk lore. We know of no recent investigation into the connection between the moon and the Arabian weather, but all studies bearing on European or American weather show that the lunar influence is inappreciable. We believe that the only plausible exception to this statement is to be found in the studies of Mons. A. Poincaré (an engineer and meteorologist of Paris, and not to be confounded with Prof. H. Poincaré, the eminent mathematician). His study of the international daily charts of the Northern Hemisphere, published by the United States Signal Service, seems to indicate that when the moon is far south of the equator it has an appreciable influence in causing a general movement of the atmosphere southward, and vice versa when she is north of the equator; but this movement is only appreciable when we take the average barometric pressure for several days or a week; it is essentially a fortnightly tidal wave, and is not known to have any apparent influence upon the temperature, cloudiness, rainfall, or wind. It can not, then, be spoken of as an influence of the moon upon the weather.

The students of lunar influences are at present rejoicing in the patronage of a wealthy Russian railroad engineer, Mr. Nicolai Demtschinsky, of Torbino, Russia, who has flooded the scientific world with his prospectus and the first few sample numbers of a journal devoted to the exact prediction of the weather by means of the lunar influences.

The study of the influence of the moon on the atmosphere is certainly legitimate, but the study of the influence of the sun is also important, and it would be suicidal to neglect it. At the present time the trend of modern physics is to show that the sun's radiation produces all the thermal and most of the electric and optic phenomena of the atmosphere and that the modification introduced by the moon is scarcely worthy of consideration. The new journal states that—

> It aims to be the depository for all information upon the question of atmospheric ebb and tide, including therein, first, the influence of the moon on the atmosphere, and, second, the investigation of the upper strata of the atmosphere.

But, of course, every scientific journal is willing to publish investigations on these subjects. Investigations conducted by rational methods are precisely what is meant by science. All that has hitherto been found out about lunar influences and the upper strata of the atmosphere has already been published in scientific journals and memoirs. If any one in the United States has anything worthy of publication on this subject, he can make it known in the columns of the MONTHLY WEATHER REVIEW or the American Journal of Science even more easily than by sending it to Torbino, Russia. In fact, we can not but suspect that most of the articles published in a miscellaneous way had already been rejected by the editors of recognized scientific journals as containing assumptions and statements directly contrary to the known laws of nature. One may have the best of observational data, and yet go far astray when he attempts to reason upon it. The data that has been furnished to Mr. Demtschinsky by the Chief of the Weather Bureau during the past few years, and which is now quoted in his monthly journal, was communicated for his information, and the reader should not infer from the text of the journal that the Weather Bureau has any reason to adopt new doctrines that are contrary to observed facts and scientific principles.

ERRATA.

The following corrections should be made in the MONTHLY WEATHER REVIEW for 1898, Vol. XXVI:

Page 359, column 2, lines 12 and 13, after v in the formulæ insert the minus (—) sign.

Page 410, column 1, line 32, for XVI read XVII.

January, 1901, REVIEW, page 6, column 2, line 27 from bottom, for 460° F. read 492° F.; line 25 from bottom, for 530° read 562°.

THE WEATHER OF THE MONTH.

By ALFRED J. HENRY, Professor of Meteorology.

CHARACTERISTICS OF THE WEATHER FOR MARCH.

March, 1901, was characterized by the rapid movement eastward and northeastward of lows, many of which divided after crossing the Appalachians, and by the complete reversal of the conditions which obtained in the previous month as regards pressure distribution and movement of storms. About 70 per cent of the highs moved eastward along the Gulf coast and passed over the Atlantic in the neighborhood of the Carolinas. Temperature was above the average, except in the eastern Gulf States, Florida Peninsula, and the southern Plateau, and precipitation was irregularly distributed, but on the whole fairly abundant.

PRESSURE.

The distribution of monthly mean pressure is graphically shown on Chart IV and the numerical values are given in Tables I and VI.

The most noteworthy feature in the distribution of monthly mean pressure was the breaking up of the ridge of high pressure which in an average month stretches from Florida northwestward to the Dakotas. Mean pressure in the interior of the country was everywhere below normal by about the same amount as it was above normal in the preceding month. It will be remembered that during February, 1901, pressure was remarkably low over the North Atlantic and New England and high in the interior of the country. These conditions are reversed in the current month.

TEMPERATURE OF THE AIR.

The distribution of monthly mean surface temperature, as deduced from the records of about 1,000 stations, is shown on Chart VI.

The month as a whole was warmer than usual. In the eastern Gulf States and on the Florida Peninsula, also in the Southwest, including Nevada and Colorado, temperature was below normal, ranging from 2° to 3°. In all other parts of the country, however, the temperature ranged from 3° to 6° above the seasonal average. Maximum temperatures of 100° and over were registered in the Rio Grande Valley, and maximum temperatures above 80° were quite general in southern Georgia, Florida, in the lower Mississippi Valley, the western

Gulf States, Oklahoma, Indian Territory, and Kansas. Maximum temperatures under 40° were recorded in northern Minnesota and the northern part of North Dakota. Freezing temperatures were experienced in all parts of the country save the central and southern parts of the Florida Peninsula and along the immediate Gulf and Pacific coasts. Minimum temperatures as low as 30° below zero were recorded in northeastern North Dakota.

The average temperature for the several geographic districts and the departures from the normal values are shown in the following table:

Average temperatures and departures from the normal.

Districts.	Number of stations.	Average temperatures for the current month.	Departures for the current month.	Accumulated departures since January 1.	Average departures since January 1.
		°	°	°	°
New England	10	33.3	+ 1.1	— 3.9	— 1.3
Middle Atlantic	12	42.0	+ 2.8	— 2.6	— 0.9
South Atlantic	10	54.6	+ 0.9	— 5.2	— 1.7
Florida Peninsula	7	63.6	— 2.0	— 7.8	— 2.6
East Gulf	7	57.4	— 1.0	— 5.1	— 1.7
West Gulf	7	58.3	+ 0.5	+ 3.8	+ 1.3
Ohio Valley and Tennessee	12	45.4	+ 1.3	— 4.0	— 1.3
Lower Lake	8	33.9	+ 1.6	— 5.6	— 1.9
Upper Lake	9	27.4	+ 0.8	— 0.9	— 0.3
North Dakota	8	26.0	+ 5.5	+12.3	+ 4.1
Upper Mississippi Valley	11	36.8	+ 1.0	+ 1.6	+ 0.5
Missouri Valley	10	37.8	+ 2.4	+ 9.8	+ 3.3
Northern Slope	7	34.6	+ 2.8	+ 8.4	+ 2.8
Middle Slope	6	42.0	0.0	+ 2.9	+ 1.0
Southern Slope	6	50.7	+ 0.8	+ 3.7	+ 1.2
Southern Plateau	15	46.5	— 1.0	+ 8.1	+ 2.7
Middle Plateau	9	39.1	+ 0.9	+ 9.4	+ 3.1
Northern Plateau	10	39.1	+ 2.2	+ 7.8	+ 2.6
North Pacific	9	44.8	— 0.4	+ 1.4	+ 0.5
Middle Pacific	5	54.0	+ 1.7	+ 3.2	+ 1.1
South Pacific	4	58.2	+ 2.7	+ 7.0	+ 2.3

In Canada.—Prof. R. F. Stupart says:

The temperature was above the average throughout the Dominion, except in the comparatively small portion of the country comprised in the area from the eastern part of the Lake Superior region to western Quebec, south to the north shores of the Georgian Bay district and the Ottawa and St. Lawrence rivers, where it was from average to 2° below. From the mainland of British Columbia to Manitoba the plus departure was large, amounting to as much as 9° and 10° in portions of Alberta and Assiniboia. Elsewhere, however, the average was very slightly exceeded.

PRECIPITATION.

The rainfall was fairly abundant in all regions except the lower Ohio Valley, the lower Mississippi Valley, the eastern Gulf States, eastern Texas, and the Pacific coast. In the last-named region there was a deficiency of as much as 3 inches on the California coast, and about an inch on the Washington and Oregon coasts. Rainfall was also generally deficient throughout the Plateau regions and in some portions of the middle Rocky Mountain region. The fall of snow was light in the middle Mississippi and Ohio valleys, the Middle States, and New England. Monthly snowfalls of from 10 to 20 inches occurred in northern Michigan, Wisconsin, Minnesota, and in Iowa and portions of Nebraska. The snowfall in the Rocky Mountain region seems to have been rather below than above the seasonal average.

The amount of snow on the ground at the end of the month was so small that the preparation of the usual chart has been omitted.

The distribution of snowfall is shown by Chart IX.

In Canada.—Professor Stupart says:

The precipitation was unevenly distributed in many respects. In Ontario and Quebec it was everywhere above the average, except in portions of the Ottawa Valley. In the Maritime Provinces the discrepancies between plus and minus were very marked. For instance, Sydney, Cape Breton, was about 1.6 above average, Charlottetown 1.7 below average, St. John 0.8 below average, Grand Manan 0.9 above average, Yarmouth average, Halifax 1.4 below average. In Manitoba the average was not quite maintained, especially in the neighborhood of Winnipeg, whereas in the territories in the north it was exceeded, and did not reach the average amount in the south. In British Columbia, Victoria was 2.2 inches below average, whereas on the mainland, Kamloops was half an inch below average, and Barkerville over half an inch above average.

At the end of the month deep snow still covered the Province of Quebec and also the northern portion of Ontario. Quebec reported 33 inches on the ground, Montreal 23 inches, Bissett 20 inches, White River 34 inches. In many portions of the Northwest Territories and also in northern New Brunswick there was more than a foot, but in southern localities generally the ground was either bare or patches of snow only remained.

Average precipitation and departure from the normal.

Districts.	Number of stations.	Average.		Departure.	
		Current month.	Percentage of normal.	Current month.	Accumulated since Jan. 1.
		Inches.		*Inches.*	*Inches.*
New England	10	5.55	144	+1.7	—2.5
Middle Atlantic	12	3.63	96	—0.2	—3.9
South Atlantic	10	4.24	95	—0.2	—1.8
Florida Peninsula	7	4.87	164	+1.9	+1.6
East Gulf	7	5.53	93	—0.4	—0.9
West Gulf	7	2.23	65	—1.2	—4.6
Ohio Valley and Tennessee	12	3.48	81	—0.8	—5.6
Lower Lake	8	2.65	104	+0.1	—1.4
Upper Lake	9	2.82	140	+0.8	—0.9
North Dakota	8	0.82	89	—0.1	—0.6
Upper Mississippi Valley	11	2.72	123	+0.5	—0.9
Missouri Valley	10	2.07	117	+0.3	—0.5
Northern Slope	7	0.80	100	0.0	—0.4
Middle Slope	6	1.00	62	—0.6	—1.4
Southern Slope	6	0.23	19	—1.0	—1.8
Southern Plateau	15	0.49	45	—0.6	+1.0
Middle Plateau	9	1.16	85	—0.2	+0.1
Northern Plateau	10	1.02	67	—0.5	—0.7
North Pacific	9	4.36	78	—1.2	—0.7
Middle Pacific	5	1.27	31	—2.8	+0.2
South Pacific	4	0.61	28	—1.6	+1.9

SLEET.

The following are the dates on which sleet fell in the respective States:

Alabama, 1. Arizona, 8, 11, 28, 30, 31. Arkansas, 19, 29, 31. California, 10, 11, 22, 23, 25, 27, 28, 29, 30, 31. Colorado, 8, 12, 27. Connecticut, 11, 13, 14. District of Columbia, 1. Idaho, 31. Illinois, 1, 2, 3, 10, 13, 29, 30. Indian Territory, 19, 31. Iowa, 4, 6, 9, 10, 12, 13, 18, 19, 24, 25, 26. Kansas, 9, 29. Kentucky, 9, 10, 14, 20, 24, 25. Louisiana, 9, 23. Maine, 11, 12, 14. Maryland, 1, 4, 21, 27. Massachusetts, 5, 10, 11, 13, 14. Michigan, 1, 2, 3, 8, 10, 11, 12, 13, 14, 19, 20, 23, 30. Minnesota, 2, 3, 12, 13, 14, 19, 23, 29. Missouri, 9, 10, 19, 28, 29, 30. Montana, 2. Nebraska, 3, 4, 9, 12, 18, 23, 24, 25, 26, 29. Nevada, 11, 12, 23, 30. New Hampshire, 10, 11, 19, 21, 24, 26, 28. New Jersey, 1, 4, 5, 11, 14, 15. New York, 1, 2, 3, 4, 8, 9, 11, 13, 14, 15, 19, 27. North Dakota, 2, 7, 23, 24, 25. Ohio, 1, 2, 3, 8, 9, 10, 11, 12, 13, 14, 15, 20, 27, 30. Oklahoma, 19, 28, 31. Pennsylvania, 3, 4, 5, 11, 13, 14, 20, 27. South Carolina, 1. South Dakota, 11, 18, 23, 24, 29. Tennessee, 29. Texas, 31. Utah, 7, 8, 11, 13, 22, 23, 25, 26. Vermont, 3, 5, 6, 7, 9, 10, 11, 12. Virginia, 1, 4, 10. Washington, 9, 10, 25. West Virginia, 1, 3, 4, 5, 11, 28. Wisconsin, 3, 8, 10, 11, 12, 13, 14, 18, 19, 20, 21, 23, 24, 25, 26, 27. Wyoming, 8.

HAIL.

The following are the dates on which hail fell in the respective States:

Alabama, 15, 23, 25. Arizona, 6, 7, 8, 9, 29, 30, 31. Arkansas, 9, 10, 12, 19, 27, 28, 29, 30. California, 9, 10, 22, 25, 27, 28, 29, 30. Connecticut, 11. Florida, 23. Georgia, 1, 25. Idaho, 12, 17, 18, 22, 24, 25, 26, 27, 30, 31. Illinois, 9, 19, 20, 24, 25. Indiana, 14, 24, 25. Indian Territory, 18. Iowa, 12, 19, 23, 24, 25. Kansas, 28. Louisiana, 8, 9, 19, 22, 23, 24. Maine, 27. Maryland, 1, 4. Michigan, 3, 8, 10, 11, 13, 19, 25. Minnesota, 23. Nevada, 8, 11, 12, 22, 23, 24, 25, 26, 27, 31. North

Carolina, 5, 10, 24, 25, 26, 30, 31. Ohio, 10, 13, 24, 25, 26. Oklahoma, 9, 18, 19, 23, 28, 29. Oregon, 8, 9, 10, 11, 16, 17, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31. South Carolina, 9, 10, 14, 25, 26. South Dakota, 11, 24. Tennessee, 4, 10, 19, 25, 26. Texas, 9, 18, 19, 22, 29. Utah, 7, 8, 11, 12, 18, 22, 23, 24, 25, 26, 29, 30. Virginia, 10, 11, 25, 26. Washington, 2, 7, 9, 17, 21, 22, 23, 26, 27, 28, 31. Wisconsin, 9, 10, 18, 19, 23.

HUMIDITY.

The averages by districts appear in the subjoined table:

Average relative humidity and departures from the normal.

Districts.	Average.	Departure from the normal.	Districts.	Average.	Departure from the normal.
	%			%	
New England	76	+ 1	Missouri Valley	68	— 4
Middle Atlantic	71	0	Northern Slope	68	+ 2
South Atlantic	69	— 5	Middle Slope	58	— 2
Florida Peninsula	74	— 4	Southern Slope	43	—13
East Gulf	66	— 8	Southern Plateau	36	— 4
West Gulf	66	— 4	Middle Plateau	57	+ 3
Ohio Valley and Tennessee	70	0	Northern Plateau	70	0
Lower Lake	77	+ 1	North Pacific Coast	79	— 1
Upper Lake	83	+ 5	Middle Pacific Coast	66	—10
North Dakota	79	+ 2	South Pacific Coast	67	— 7
Upper Mississippi	74	+ 3			

SUNSHINE AND CLOUDINESS.

The distribution of sunshine is graphically shown on Chart VII, and the numerical values of average daylight cloudiness, both for individual stations and by geographical districts, appear in Table I.

The averages for the various districts, with departures from the normal, are shown in the table below:

Average cloudiness and departures from the normal.

Districts.	Average.	Departure from the normal.	Districts.	Average.	Departure from the normal.
New England	6.7	+1.1	Missouri Valley	5.7	+0.1
Middle Atlantic	5.9	+0.4	Northern Slope	5.2	—0.1
South Atlantic	4.5	—0.2	Middle Slope	4.5	+0.1
Florida Peninsula	3.6	—0.4	Southern Slope	3.6	—0.6
East Gulf	4.3	—0.4	Southern Plateau	2.4	—0.6
West Gulf	3.7	—1.5	Middle Plateau	4.8	—0.1
Ohio Valley and Tennessee	6 2	+0.3	Northern Plateau	5.8	—0.7
Lower Lake	7.3	+0.9	North Pacific Coast	7.1	+0.5
Upper Lake	7.2	+1.3	Middle Pacific Coast	3.7	—1.3
North Dakota	5.0	—0.5	South Pacific Coast	2.9	—1 6
Upper Mississippi	6.5	+1.0			

ATMOSPHERIC ELECTRICITY.

Numerical statistics relative to auroras and thunderstorms are given in Table IV, which shows the number of stations from which meteorological reports were received, and the number of such stations reporting thunderstorms (T) and auroras (A) in each State and on each day of the month, respectively.

Thunderstorms.—Reports of 1,597 thunderstorms were received during the current month as against 740 in 1900 and 357 during the preceding month.

The dates on which the number of reports of thunderstorms for the whole country were most numerous were: 25th, 243; 26th, 177; 10th, 169.

Reports were most numerous from: Missouri, 117; Illinois, 106; North Carolina and Ohio, 91.

Auroras.—The evenings on which bright moonlight must have interfered with observations of faint auroras are assumed to be the four preceding and following the date of full moon, viz: 1st to 9th.

In Canada.—Auroras were reported as follows: Halifax, 24th; Quebec, 18th, 24th; Minnedosa, 22d, 23d, 24th; Battleford, 13th, 21st.

Thunderstorms were reported as follows: Kingston, 10th, 25th; White River, 26th; Parry Sound, 10th, 25th; New Westminster, 25th.

WIND.

The maximum wind velocity at each Weather Bureau station for a period of five minutes is given in Table I, which also gives the altitude of Weather Bureau anemometers above ground.

Following are the velocities of 50 miles and over per hour registered during the month:

Maximum wind velocities.

Stations.	Date.	Velocity.	Direction.	Stations.	Date.	Velocity.	Direction.
Alpena, Mich	3	54	se.	Jacksonville, Fla	26	61	s.
Amarillo, Tex	9	55	nw.	Lexington, Ky	3	52	sw.
Do	12	52	nw.	Marquette, Mich	3	62	w.
Do	18	50	nw.	Memphis, Tenn	9	75	sw.
Do	19	50	nw.	Mount Tamalpais, Cal.	7	75	nw.
Do	23	50	nw.	Do	8	62	nw.
Do	27	50	nw.	Do	10	55	w.
Buffalo, N. Y	3	52	sw.	Do	17	62	nw.
Do	4	53	s.	Do	21	81	nw.
Do	11	60	w.	Do	22	82	nw.
Chicago, Ill	13	56	se.	Do	23	60	w.
Do	20	50	sw.	Do	24	55	n.
Cleveland, Ohio	3	53	sw.	Do	27	56	nw.
Denver, Colo	2	55	nw.	Nashville, Tenn	23	58	se.
Do	3	61	nw.	New York, N. Y	31	62	nw.
Eastport, Me	11	50	se.	North Platte, Nebr	12	53	nw.
El Paso, Tex	8	58	w.	Pensacola, Fla	23	54	se.
Do	18	54	nw.	Point Reyes Light, Cal.	8	66	nw.
Do	23	52	w.	Portland, Me	11	50	ne.
Do	24	55	nw.	Saint Louis, Mo	10	53	sw.
Erie, Pa	3	52	s.	Do	13	50	w.
Do	10	50	s.	Sault Ste. Marie, Mich.	3	54	w.
Fort Smith, Ark	12	50	w.	Sioux City, Iowa	3	58	nw.
Hatteras, N. C	5	52	n.	Winnemucca, Nev	10	53	sw.

DESCRIPTION OF TABLES AND CHARTS.

By ALFRED J. HENRY, Professor of Meteorology.

Table I gives, for about 145 Weather Bureau stations making two observations daily and for about 25 others making only one observation, the data ordinarily needed for climatological studies, viz, the monthly mean pressure, the monthly means and extremes of temperature, the average conditions as to moisture, cloudiness, movement of the wind, and the departures from normals in the case of pressure, temperature, and precipitation, the total depth of snowfall, and the mean wet-bulb temperatures. The altitudes of the instruments above ground are also given.

Table II gives, for about 2,700 stations occupied by voluntary observers, the highest maximum and the lowest minimum temperatures, the mean temperature deduced from the average of all the daily maxima and minima, or other readings, as indicated by the numeral following the name of the station; the total monthly precipitation, and the total depth in inches of